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Value Creation Through Integration Workshop

Supplier Networks Perspective

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Orientation

- **Definition:** Integration of product development, manufacturing & supplier networks means integration of
  - Product development AND manufacturing
  - Supplier integration INTO product development AND manufacturing
- **Emphasis here:** integration of supplier networks into product development *as well as* into manufacturing

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Supplier Integration

Coordination of interactions between

- Product development and supplier network
- Manufacturing and supplier network
- Across supplier network
- through the creation of appropriate means (e.g.,
- Governance mechanisms,
- Practices, processes, contractual arrangements
- leading to efficient creation of customer-focused
- value for all enterprise stakeholders

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Basic Message

As aerospace enters new era, supplier integration shifting rapidly from mastering mechanics of lean supply chain management to building Internet-enabled integrated value networks

- **Improving efficiency through supplier integration is a necessary but not sufficient condition for value creation**
- **We need to move beyond seeking greater efficiency to evolutionary capability-building**
- **Fostering supplier innovation is key to dynamic capability building, stressing innovation & knowledge integration across supplier networks**

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Supplier Integration: Past as Prologue

- **Significant progress made in re-design and integration of supplier networks into both product development & manufacturing during the past decade**
- **As a result, industry has achieved considerable efficiency and performance improvements**
- **However, supplier integration efforts have been dominated by an emphasis on elimination of waste -- focusing largely on efficiency-seeking improvements**
- **There still remain many opportunities for greater efficiency gains through supplier integration**

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Opportunities: Examples (1)

Based on current research on fostering innovation across supplier networks, concentrating on military avionics

- **Program uncertainty significantly impedes innovation**
  - **Fear to make long-term investments**
  - **Lack of long-term commitment to suppliers**
  - **Negative impact on intellectual capital development**
- **Anorexic lean worst enemy of long-term capability building**
  - **More desire than ever before for collaboration, but fewer resources to do so**
  - **Suppliers shut out of making creative suggestions**

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Opportunities: Examples from Current Research (2)

- **Concern for secrecy and limited visibility into product system architecture a big barrier to innovative solutions by suppliers**
- **Need for requalification walls off product & process improvement initiatives by suppliers**
- **Lack of rewards for supplier-based innovations; few contractual incentives**
- **Short-term contracting extremely transaction-intensive, costly & diverts effort away from productive pursuits**
- **Multiple communications links causing chaos rather than enabling effective information flows & collaboration**

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Relearning Toyota Lessons for Aerospace

- **Toyota took advantage of efficiency gains through lean manufacturing (kanban, just-in-time, kaizen)**
  - **Supplier integration into manufacturing a strategic weapon**
  - **Shifted primary competitive domain into product development**
- **Integrated suppliers early into design & development**
  - **Benefited from supplier-provided innovation**
  - **Pursued proactive technology transfer across supplier network**
- **Toyota's business model: Value creation through continuous efficiency gains driving on-going organizational learning and innovation**
  - **Affordable and high quality products offering best value**
  - **Product differentiation through continuous innovation**
  - **Optimizing supplier capabilities & innovation across supplier base**

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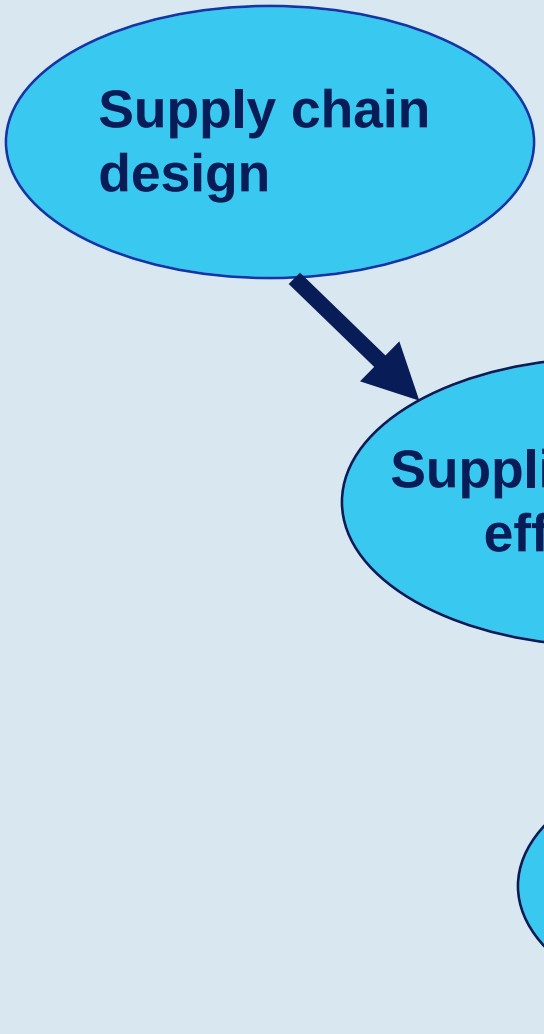
Framework



- Make-buy linked to corporate strategic thrust
- Differentiated supply chain strategy
- Align & develop supplier capabilities
- Open communications

- Effective differentiated relationships
- Supplier partnerships & alliances
- Common objectives
- Value stream mapping
- Continuous improvement

- Enhanced supplier flexibility & responsiveness
- Early supplier integration into design & development
- Incremental, modular & architectural innovation
- Fostering innovation across supplier network

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Implications

- **Lifecycle perspective -- facilitate "cradle-to-grave" supplier integration in environment of variable technology clockspeeds to address technological obsolescence challenges**
- **Cross-platform perspective -- integrate supplier networks across multiple platforms**
  - **Product architecture choices to benefit from supplier-based product and process innovations**
  - **Parts standardization; standard interfaces; commonality of parts; interoperability -- touchstones for supplier integration strategies**
- **Meta value stream perspective -- align incentives to create "mutual gains" relationships throughout acquisition/product realization supplier value stream**

